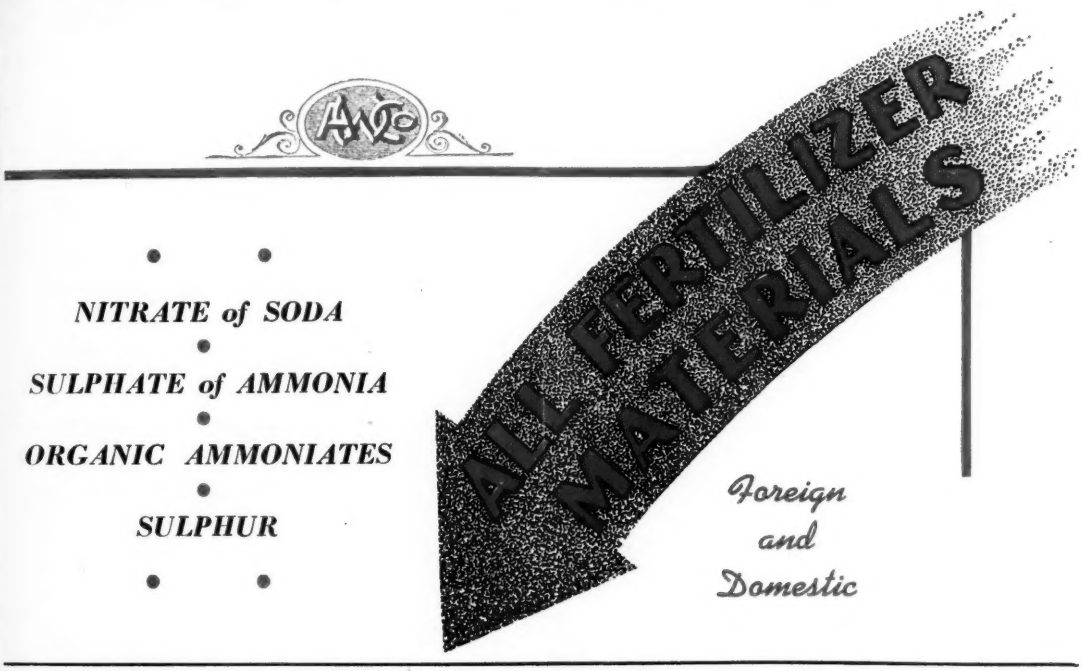
# The American Fertilizer

Vol. 95 NOVEMBER 8, 1941 No. 10



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Increasingly, manufacturers are now including Twenty Mule Team Borax in the mix to supply boron as recommended by local agricultural authorities. They know that the famous Twenty Mule Team trademark is their assurance of uniformity and quality.

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# Include Plenty of "Sunshine State" Potash in the Fertilizer Mix

• With the new emphasis placed in recent years upon cover crops in maintaining and improving soil fertility, has come an increasing realization of the wisdom of fertilizing these crops. Fertilizers help cover crops to make good growth and better accomplish their purpose of covering and protecting the soil, supplying humus, and in the case of legumes, fixing nitrogen from the air. Also plant nutrients turned under in the cover crop are made effectively available to following crops.

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*See Page 23*

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TRONA

...THE...

# AMERICAN FERTILIZER

"That man is a benefactor to his race who makes two blades of grass to grow where but one grew before."

Vol. 95 NOVEMBER 8, 1941 No. 10

# The Atlanta Convention

**Seventeenth Annual Southern Convention of the National Fertilizer Association to Meet on November 17th, 18th and 19th. Industry's Part in Defense Program to be Emphasized.**

THE Seventeenth Annual Southern Convention of the National Fertilizer Association will be held in Atlanta on November 17th, 18th and 19th. As in past years, the meetings will be held in the Atlanta-Biltmore Hotel. An attendance of more than 400 is expected, as the problems which confront every fertilizer manufacturer can only be solved by cooperation and joint effort.

A very timely program has been arranged for the two general sessions, with speakers who are authorities in the various subjects connected with the agricultural defense program. Monday, November 17th will be devoted to committee sessions; the Board of Directors will meet at 10 A. M. and in the afternoon at 1.30 the Soil Improvement Committee will hold its organization meeting. General sessions will be held on Tuesday, November 18th at 10.30 A. M. and Wednesday, November 19th at 10 A. M., with speakers from the U. S. Department of Agriculture, from agricultural colleges, and from the Defense Administration. Of particular interest will be a talk by T. E. Milliman who is handling fertilizer and insecticide matters in the office of Production Management.

Included among the speakers are Roy F. Hendrickson, who recently succeeded Milo Perkins as head of the Surplus Marketing Administration, which handles lease-lend food for England as well as the stamp plan and other domestic distributions.

The Annual Industry Dinner has been arranged for Tuesday evening at 7.30 and will be held at the Atlanta-Biltmore Hotel. The address of the evening will be given by Dr. John J. Tigert, President of the University of Florida who has chosen for his subject "Education for Defense in a Changing World."

The detailed program is as follows:

**MONDAY, NOVEMBER 17TH**

10.00 A. M. Board of Directors.

1.30 P. M. Organization Meeting of Soil Improvement Committee.

**TUESDAY, NOVEMBER 18TH**

**General Session, 10.30 A. M.**

*President John A. Miller in the Chair.*

*Song:* America.

*Invocation.*

*Opening Address:* John A. Miller, President, The National Fertilizer Association.

*Address—"Farm Production and the Defense Program":* Dr. I. W. Duggan, Director, Southern Division, Agricultural Adjustment Administration, U. S. Department of Agriculture, Washington, D. C.

*Address—"The Fertilizer Industry's Interest in Livestock Production":* Dr. M. P. Jarnagin, Professor and Head of Department of Animal Husbandry, College of Agriculture, University of Georgia, Athens, Ga.

*Unfinished and New Business.*

**Annual Industry Dinner, 7.30 P. M.**

*President John A. Miller, Presiding.*

*Introduction of Guests.*

*Address—"Education for Defense in a Changing World":* Dr. John J. Tigert, President, University of Florida, Gainesville, Fla.

(Continued on page 6)

**WEDNESDAY, NOVEMBER 19TH**

**General Session, 10.00 A. M.**

*President John A. Miller in the Chair.*

*Address—"Food in Peace and War":* Roy F. Hendrickson, Administrator, Surplus Marketing Administration, Washington, D. C.

*Address—"Fertilizer Industry Adjustments During the Emergency":* T. E. Milliman, Office of Price Administration, Washington.

*Address—"Fertilizer Chemicals and National Defense":* Dr. Felix Stapleton, Chemical Division, Office of Production Management, Washington, D. C.

## A. O. A. C. Annual Meeting

The 57th annual meeting of the Association of Official Agricultural Chemists was held in Washington on October 27-29. No radical changes were made in the definitions of fertilizer materials. The constitution of the Association was amended so that in the future any new methods or changes in methods of determining definitions of agricultural chemicals will become effective 30 days after publication of the record of the action in the official Journal of the Association.

Officers for the coming year were elected as follows: President, J. W. Sale, U. S. Food and Drug Administration; Vice-President, G. C. Frary, State Chemist, Vermillion, South Dakota; Secretary and Treasurer, W. W. Skinner, Bureau of Agricultural Chemistry and Engineering, Washington, D. C.; Executive Committee, J. O. Clarke, Chicago, Ill., G. H. Marsh, Montgomery, Ala., L. B. Broughton, University of Maryland, W. H. Ross, Bureau of Plant Industry.

On the evening of October 27th, the National Fertilizer Association held its annual dinner in honor of the A. O. A. C. members present at the meeting. About 100 guests were present. The feature event of the evening was the presentation, by the Chemical Control Committee of the N. F. A., of a beautiful silver pitcher and tray to Dr. E. W. Magruder, chief chemist of F. S. Royster Guano Co., in recognition of his long service to the industry. For almost 20 years, Dr. Magruder has prepared and sent out to 70 analysts check samples of fertilizer materials, compiled the results and made them available to chemists in the industry so that each might know how his own work checked with that of others.

The Committee on Definitions of Terms and Interpretations of Results on Fertilizers consists of L. S. Walker, Chairman; W. C. Jones; G. S. Fraps; L. E. Bopst; W. H. MacIntire. The changes adopted were as follows:

**OFFICIAL, FIRST ACTION**

**Nitrate of Soda and Potash**

*Nitrate of soda and potash* is a commercial product containing nitrates of sodium and potassium and shall contain not less than 14 per cent of nitrogen (N) and 14 per cent of potash ($K_2O$).

**Guaranteeing in Terms of Elements**

All fertilizer components with the exceptions of potash ($K_2O$) and phosphoric acid ($P_2O_5$) if guaranteed shall be stated in terms of the elements.

**FIRST READING TENTATIVE**

**Magnesium Oxide**

*Magnesium oxide is* a commercial product containing not less than ninety-two per cent (92%) of the oxide of magnesium.

**Subject for Discussion**

Due to the fact that instances have come to our attention that serious injury to livestock has resulted, some term such as "Injurious to Livestock" should be carried on bags containing nitrate of soda, nitrate of potash and nitrate of calcium.

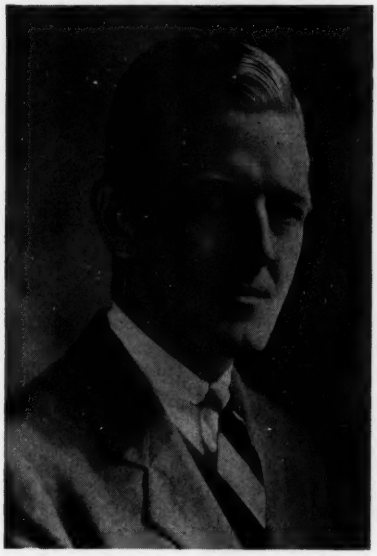
## RICHMOND GUANO PLANT BURNED

During the morning of October 25th, the plant of the Richmond Guano Company, located on the James River about a mile below Richmond, Va., was destroyed by fire. The blaze was discovered at about 10 o'clock and soon got out of control so that the fire companies were unable to prevent the spread of the flames. The firemen continued their efforts for about five hours but were able to save only a small part of the plant which covers an area of acres. According to W. E. Barrett, president of the company, the damage will amount to $100,000 and is covered by insurance.

## FULTON ELECTED DAVISON DIRECTOR

Chester A. Fulton, president of the Southern Phosphate Corporation, has been elected a member of the Board of Directors of the Davison Chemical Corporation, Baltimore.

# Officers of the National Fertilizer Association 1941 - 1942



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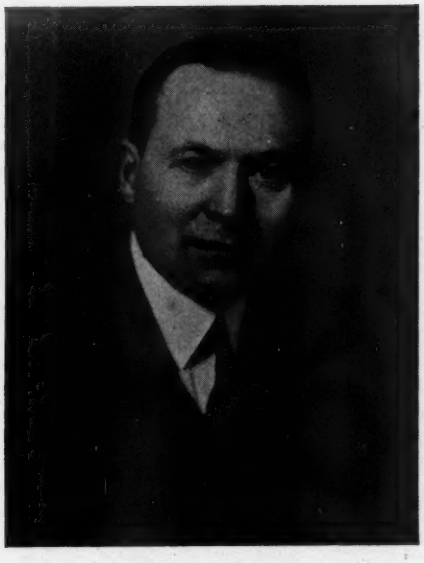
President

A. LYNN IVEY
Vice-President



CHARLES J. BRAND
Executive Secretary and Treasurer

# Cooling Ammoniated Fertilizers*

By E. F. HARFORD
*E. I. duPont de Nemours & Co., Wilmington, Del.*

### Introduction

The removal of chemically developed heat from fertilizer mixtures is recognized as an operation which is becoming increasingly necessary. The progress in mechanization of mixing plants, the speeding-up of all the operations from wet mixing to bagging, and new chemical processing developments are reaching a point where mechanical cooling is a valuable adjunct.

### Effect of Temperature Upon $P_2O_5$ Reversion

There is probably not a single fertilizer manufacturer who has not had the misfortune to run into "heating" troubles of some sort from lime, cyanamid, ammoniating solutions or spontaneous combustion. These were accepted as unavoidable annoyances, but the losses of available phosphate in "hot" storage piles were not serious or fully realized until the ammoniation processes and increasing use of limestone brought about many separate studies of heat effects. A detailed review of these contributions need not be made at this moment, but the files of "Industrial and Engineering Chemistry" and "The Journal of the Association of Official Agricultural Chemists between 1930 and 1938 will be found to contain many contributions from: (A) Ross, Beeson, Whittaker and others (1)(2)† of the U. S. Department of Agriculture showing heat effects upon $P_2O_5$ chemistry, urea behavior and dolomite reactions; (B) MacIntire and co-workers (6)(7) of the Tennessee Agricultural Experiment Station relevant to limestone and dolomite chemistry; and (C) Keenen and others (4)(5) of the duPont laboratories dealing primarily with ammonia reactions on superphosphate and effects of temperature thereon. A graph taken from the article by Beeson and Ross, which is shown in Fig. 1, (1) illustrates the effect of time and temperature on citrate-insoluble $P_2O_5$ in ammoniated 3-9-5 mixtures. Note that the reversion in fourteen days at 140° F. (60° C.) is equal to that after ninety days at 86° F. (30° C.). About forty-five days are required to reach this same point at 104° F. (40° C.). The same accelerating effect of temperature on reversion is shown in Fig. 2 taken from data by Keenen and Morgan (4). Such results demonstrate that the stability of ammoniated mixtures is greatly increased by cooling and that, at low temperatures, the reversion reactions become so slow as to lose

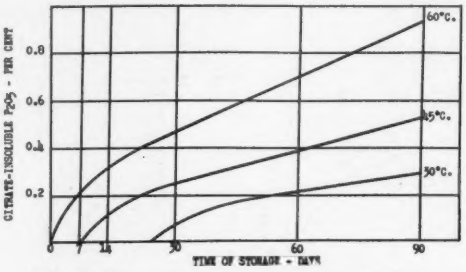



Fig. 1. Effect of storage temperature on citrate-insoluble $P_2O_5$ in ammoniated 3-9-5 fertilizer mixtures. Beeson and Ross, Ind. Eng. Chem., 29, 1172 (1937).

significance in normal storage periods. These ammoniated mixtures appeared to exhibit reversion to a different extent in 8, 10, and 12 per cent $P_2O_5$ grades. This was due to the limited citrate solubility of the precipitated phosphates formed at the higher temperatures. It should be noted that with these same mixtures stored at low temperatures the amounts of precipitated phosphates formed are so small that the differences between $P_2O_5$ grades are negligible.

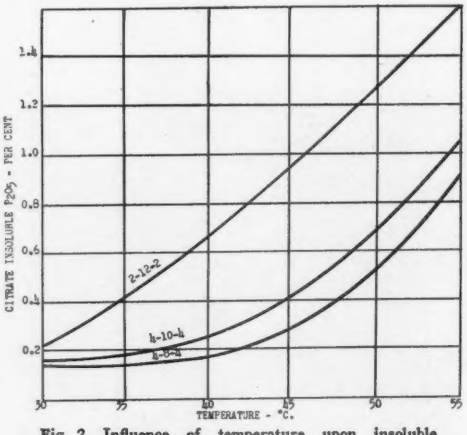



Fig. 2. Influence of temperature upon insoluble $P_2O_5$ in ammoniated mixtures after 17 weeks' storage. Keenen and Morgan, Ind. Eng. Chem., 29, 197 (1937).

* A paper presented at the Meeting of the Division of Fertilizer Chemistry, American Chemical Society, Atlantic City, N. J., September 8-12, 1941.

† Numbers in parenthesis refer to literature listed at the end of the paper.

A considerable portion of this previous work dealt with temperatures appreciably higher than commonly encountered. Now that mechanical cooling is being adopted by the fertilizer manufacturers, a more detailed knowledge of phosphate and dolomite behavior in the 90°-110° F. (32°-43° C.) region in ammoniated fertilizer mixtures is needed. An extensive study of phosphate stability in mixtures made from six or eight different commercial superphosphates ammoniated, cooled, and stored for periods up to eight months is now under way in our laboratories to obtain definite data on the effect of cooling heavily ammoniated superphosphate mixtures.

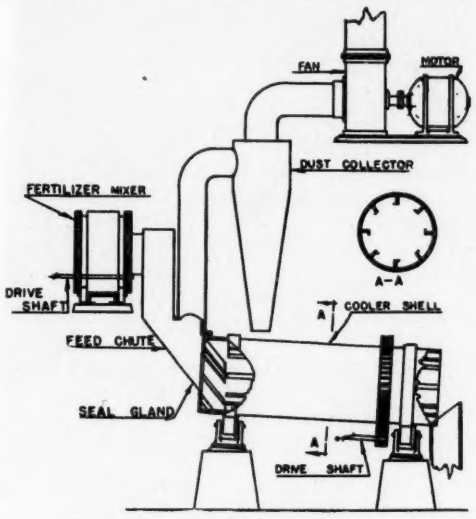



Fig. 3. Flow sheet for fertilizer mixing and cooling.

### Performance of Factory Units

Meanwhile, it seemed appropriate to present a brief review of the progress made in the mechanical developments and operations of rotary cooling units this past season, inasmuch as some improvements have been made since the presentation of the initial design data (3). The flow sheet for fertilizer mixing and cooling is shown in Fig. 3. A total of 8 units have now been installed and 3 more are in the process of construction. Capacities from 15 to 75 tons of material per hour have been the range in size of these coolers. Over 100,000 tons of fertilizer were run through the units during the past season, even though many of them were not placed in operation until late in the year. The total annual capacity for these 11 units is estimated to be 400,000 tons. In all cases where the equipment was operated at designed capacity, the fertilizer has been cooled

(Continued on page 22)

**Table I**

*Rotary Cooler Performance Tests (6 ft. diameter by 20 ft. long shell).*

| Unit No. | Temperatures, °F. Material In | Material Out | Air In | Air Out | Material Throughput Tons per Hour | Material Water Removed Lb. per Hour |
|---|---|---|---|---|---|---|
| 5 | 109 | 76 | 57 | 75 | 20 | .. |
| 1 | 134 | 80 | 52 | 92 | 25 | 360 |
| 2 | 140 | 96 | 43 | 100 | 33 | 160 |
| 2 | 145 | 102 | 45 | 103 | 37 | 355 |

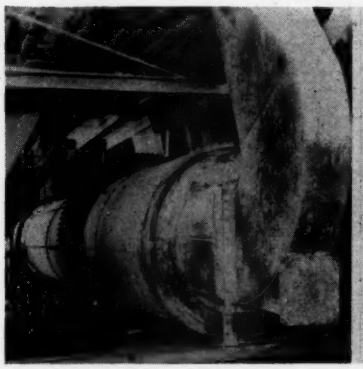


Fig. 4. Dryer converted into a cooler.

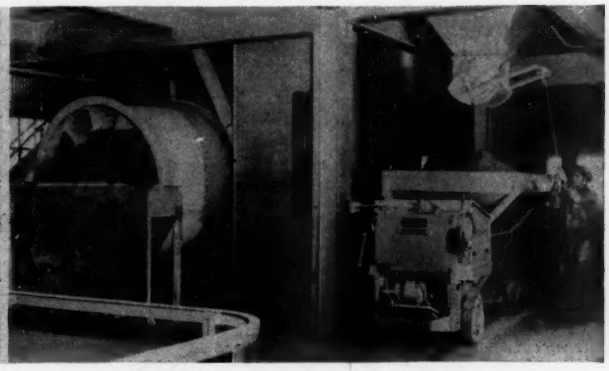


Fig. 5. Discharge end of cooler shown in Fig. 4.

# Our Food Production Program

By CLAUDE R. WICKARD, Secretary of Agriculture

*(A radio address delivered on November 3, 1941.)*

THERE never has been a time in the history of the world when so many people were conscious of food and its importance as is the case today. Over 500 million people in Europe are on rations. If they are in the army, probably they get enough to eat. If they are civilians, probably they are hungry almost all the time and it's likely they've just about forgotten what it's like to have all the food they want.

We're mighty lucky here in the United States. We have plenty of food and so far as we can see now we'll continue to have plenty. We might distribute what we have more evenly, but there's no doubt that Americans are the best fed people in the world.

Germany has chosen guns instead of butter. We're turning out the guns, too. Yet so great is our productive capacity that we probably can have guns and butter, too.

Tonight, I am going to talk about the food end of our production job. Producing the food we need won't be an easy task by no means. Not only are we going to provide food for ourselves, we're going to provide food for Britain, too, and the British need lots of food. For example, they need meat, cheese, and eggs enough to supply about a fourth of the British population. And, before this thing is over, we may have to feed other countries besides ourselves and Britain.

Next year, we'll need to produce more food than we ever produced before. We'll need to break the record high we are setting this year.

Speaking as a farmer, it seems a little strange to be worrying about the possibility of having too little. Most farmer worries since the last war have been what to do with surpluses. These surpluses piled up in elevators, warehouses, and other storage places and they really bore down on farm prices.

But I'm not going to talk about that tonight. I'm going to talk about our food situation in terms of the present. First, however, let me emphasize one thing. We don't need more of every farm product. We need more of some things and less of others.

During the first World War, we needed more of almost everything. For example, we needed more wheat. We plowed up the plains and seeded them to wheat; and in doing so we also sowed the seeds of the dust storms. Now, we don't need more wheat; we have a two years' supply on hand already. We don't need more cotton; we have more than we know what to do with; and the same thing is true of tobacco.

What farm products, then, do we need? Well, as most of you probably know, we need more dairy products, more poultry products, more pork, and we need to make better use of our fruits and vegetables. Already we've set about getting more of the things we need. At the same time farmers are continuing to hold down on the production of the things we don't need.

Now, back to our immediate situation. There are a lot of questions to be answered in connection with this food effort. Several of them keep coming up.

### Productive Capacity

One is—can our farmers produce the food we need? And people are always asking—what does the food program mean in terms of food supplies and food prices in this country? What does it mean to farmers and what does it mean to consumers?

The answer to the first question, can we produce the food we need, is, in my opinion, an emphatic yes. We *can* produce it and we *will* produce it—barring, of course, a terrible drought next year or some other unforeseen calamity.

As I said a moment ago, already we've made a pretty good start on this job of increased production. We began in 1940 when the Department of Agriculture advised farmers to raise more hogs. At that time hogs were so low in price farmers were losing money on them. Quite a few people wondered about the advisability of raising more hogs under such circumstances. Nevertheless, farmers did raise more hogs. Not only that but the Department encouraged them to feed their hogs to heavier weights, thus providing still more pork.

I am not saying that pork is cheap, even though it has gone down lately. But I am saying that pork would be a good deal higher if farmers during the last year had not taken steps to increase production.

The same thing is true of dairy products, poultry products, and some fruits and vegetables. In the spring of 1941, the Department put a floor under the prices of some of these products as part of a campaign to produce more. That campaign got results. As I have already told you, farmers raised more food in 1941 than they ever had raised before. And we've already sent Britain a good deal of food. Out of the first lease-lend appropriation, approximately half a billion dollars' worth of foods has been bought for shipment to the British. A billion dollars of the new lease-lend appropriation will be used for food and other farm products.

Right here, I should like to give you a little more detail on our production task and how we expect to get it done. During the past summer, we worked out careful estimates of our needs in terms of all the principal farm commodities. We set up those figures as our national goals for agricultural production in 1942. The national goals were broken into state goals, and the latter into county goals.

Farmer committeemen, cooperating with the Department of Agriculture, are engaged now in visiting their neighbor farmers and working out plans with them for each farm's contribution to the increased production necessary to meet the 1942 goals. Some farms can step up dairy production, some pork production, some poultry production, and so on through the list. This planning farm by farm is one reason why I am so confident of the outcome of our Food-For-Defense Program.

**Scarcity of Labor and Materials**

Farmers, however, have some handicaps to overcome before they get the job done. One is a shortage of skilled farm labor in many sections. Nor will they be able to buy as much farm machinery as they'd like, to replace the lost manpower. Farm machinery and equipment require metal, and the first preference for metal will be given to planes, tanks, ships, and guns.

Fertilizers will be scarcer too because many of the materials used as fertilizers are needed for making explosives. Some insecticides will be hard to get for similar reasons.

Labor, materials, and equipment not only will be more difficult to get, but they will be higher in price; the farmer has to pay more for his labor than he did a year ago; more for feed, more for fertilizer. Yet, in spite of these difficulties, I have no doubt that his production job will be done, and done well.

We simply can't afford to fail. Without food, American food, Britain would have had to give up before now. Without food, American food, she can't go on in the future. Food is just as much a part of our total war effort as is the raising of armies and the production of munitions.

Food is one of our strongest weapons. The lack of food is one of Hitler's great weaknesses. The Nazis are living comparatively well now. However, they are living off other people; off the food capital of the conquered countries. Foundation herds have been depleted to fill the German larders. The situation is ghastly over most of Europe. In Sunday's paper, for example, I read that Frenchmen, suffering from lack of food, are lying in bed a couple of hours more each day in an effort to conserve their strength. The conquered nations are hungry; and so long as they are hungry, they will not accept the new order.

As the war goes on, there will be more and more hunger in Europe. In addition to producing food for ourselves and for our Allies, American agriculture has the task of building up reserves of food. That food will be one of the most effective arguments that can be made against Hitlerism. When the Nazis are defeated, we'll use that food to feed the hungry. We'll use it to help insure a just and lasting peace.

**Prices To Be Kept Within Limits**

Some of you may be wondering whether we can feed ourselves, our Allies, build up reserves, and at the same time keep food prices from going sky high. Yes, we can, provided we produce enough. You know some of the things necessary for abundant production. We have the resources and the organization. There are no other farmers in the world who can produce like American farmers. But there's one thing that is essential to abundant production that some of us may overlook. That thing is fair prices for farmers.

Keep in mind that we must have the production. There are remedies against surpluses. There is no remedy against scarcity. If we don't have enough food, our whole defense effort will be threatened, to say nothing of the defense effort of Britain and other nations fighting Hitler. If we don't have enough food, high prices and rationing automatically follow.

The simplest and most effective way to assure abundant production is fair prices to farmers. In fact, it is the only effective way.

Without fair prices, farmers simply can't produce enough for our needs. A farmer can't

(Continued on page 24)

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Vol. 95 NOVEMBER 8, 1941 No. 10

## *Principal Articles in This Issue*

PAGE

THE ATLANTA CONVENTION..... 5

A. O. A. C. Annual Meeting ..... 6

OFFICERS OF THE N. F. A..... 7

COOLING AMMONIATED FERTILIZERS..... 8

OUR FOOD PRODUCTION PROGRAM.....10

Fertilizer Sales in Texas for 1940-1941....12

North American Deliveries of Potash Salts..13

Fertilizer Problems Discussed with Government Officials .....14

FERTILIZER MATERIALS MARKET:

New York .....15
Atlanta .....15
Baltimore .....17
Wilmington .....18
Charleston .....18
Chicago .....18
Philadelphia .....20
Tennessee Phosphate .....20

## Fertilizer Sales in Texas for 1940-1941

Fertilizer sales by counties in Texas for the 1940-1941 season have been reported by Dr. G. S. Fraps, State Chemist, in charge of the administration of the fertilizer laws of Texas. The sales reported by counties this season amounted to 115,850 tons as against 107,950 tons for the previous year. Amounts sold in the several counties show that the increased quantities used during the season are distributed largely over the northeastern part of the State. The leading counties this year were the leading counties last year. Harrison county leads with 5,323 tons, a gain of 847 tons, and Smith with 5,223 tons shows a gain of 1,163 tons. Rusk county gained 1,109 tons and Upshur county gained 914 tons.

Sales in the leading counties were as follows:

| | Tons | | Tons |
|---|---|---|---|
| Harrison | 5,323 | Houston | 1,978 |
| Smith | 5,223 | Webb | 1,940 |
| Cass | 4,994 | Henderson | 1,862 |
| Jefferson | 4,374 | Morris | 1,800 |
| Cherokee | 4,250 | Chambers | 1,638 |
| Rusk | 4,163 | Titus | 1,637 |
| Nacogdoches | 3,689 | Brazoria | 1,588 |
| Shelby | 3,227 | Gregg | 1,550 |
| Harris | 3,204 | Angelina | 1,485 |
| Panola | 3,203 | Tarrant | 1,202 |
| Bowie | 3,157 | Cameron | 1,120 |
| Hidalgo | 2,839 | Jasper | 1,062 |
| Upshur | 2,719 | Red River | 1,050 |
| Wood | 2,697 | Maverick | 1,026 |
| Van Zandt | 2,604 | Grimes | 1,021 |
| Camp | 2,312 | Leon | 1,009 |
| Hopkins | 2,280 | | |
| Liberty | 2,164 | Remaining | 87,528 |
| El Paso | 2,138 | 148 Counties | 28,322 |
| | | | 115,850 |

The sales as reported by counties are lower than the actual sales, but they account for most of the fertilizer sold. Fertilizers are more extensively used in East Texas than in other parts of the state. This may be explained by the fact that much of the rainfall in middle and western Texas is irregular and in some cases too scattered to provide sufficient moisture to cause the fertilizer to become available for use by the crops in time to increase the yields. In East and Northeast Texas nice profits result from the use of fertilizer on cotton, corn, and potatoes, as well as all sorts of truck and fruit crops.

The use of fertilizers to increase yields of cotton is very desirable from several angles on soils that respond to fertilizers profitably. The increases in yield do not involve any additional land nor added cultivation expense. Thus, the

farmer by adding fertilizer may secure 20 to 30 per cent more yields from which virtually the only deduction needed in arriving at the net profit is the cost of the fertilizers. Since the unfertilized crop must pay for the use of the land and for the seed and the cultivation, the increase in yields due to fertilizer would cost merely the fertilizing materials distributed on the land and the cost of harvesting the increase. It may sometimes happen that an unfertilized crop of cotton will just about pay cost of production and harvesting while the margin in favor of fertilizer becomes the only net income from the farm. In such a case, the use of fertilizer becomes very important and may mean the saving of a home enterprise.

## North American Deliveries of Potash Salts

*Third Quarter and Nine Months of the Calendar Year 1941*

The American Potash Institute, Inc., announces that deliveries of agricultural potash by the four major producing Companies within the continental United States, Canada, Cuba, Puerto Rico, and Hawaii during the third quarter of the calendar year 1941 amounted to 113,295 tons of actual $K_2O$, equivalent to 217,183 tons of potash salts. Constituting this total were 155,994 tons of muriate, 44,776 tons of manure salts, and 16,413 tons of sulphate. In addition, deliveries for chemical uses amounted to 26,811 tons of salts, equivalent to 16,623 tons of $K_2O$. These figures include salts of domestic origin only.

In terms of regional consignments, the total of 96,405 tons $K_2O$ delivered within the continental United States was shipped as follows: Northeastern and Mid-Atlantic States 23,161 tons; Southern States (including Virginia) 49,156 tons; Midwestern States 21,876 tons; and West Coast States 2,212 tons. The balance of 16,890 tons $K_2O$ was delivered to Canada, Cuba, Puerto Rico, and Hawaii.

**Potash Deliveries**

*(United States, Canada, Cuba, Hawaii, Puerto Rico)*

| | Short Tons $K_2O$ | |
|---|---|---|
| | Jan.-Sept., 1941 | Jan.-Sept., 1940 |
| Muriate | 266,680 | 206,689 |
| Manure Salts | 19,758 | 2,177 |
| Sulphate | 15,578 | 11,549 |
| Sulphate of Potash Magnesia | 4,274 | ..... |
| Total Agricultural | 306,290 | 220,415 |
| Chemical Potash | 36,406 | 28,042 |
| GRAND TOTAL | 342,696 | 248,457 |
| Northeast-Middle Atlantic States | 64,221 | 44,059 |
| Southern (including Va.) | 142,019 | 97,145 |
| Mid-Western | 60,609 | 40,947 |
| West Coast | 5,134 | 4,551 |
| Canada, Puerto Rico, Cuba, Hawaii | 34,307 | 33,713 |
| TOTAL AGRICULTURAL | 306,290 | 220,415 |

For the first nine months of 1941 deliveries of agricultural $K_2O$ amounted to 306,290 tons, equivalent to 563,068 tons of potash salts, consisting of 445,261 tons muriate; 70,992 tons manure salts; and 46,815 tons sulphate. Regional distribution on a $K_2O$ basis was as follows: Northeastern and Mid-Atlantic States, 64,221 tons; Southern States (Virginia included) 142,019 tons; Midwestern States, 60,609 tons; West Coast States, 5,134 tons; the remainder, 34,307 tons $K_2O$ was delivered to Canada, Cuba, Puerto Rico and Hawaii.

### GUANO CENTENARY OBSERVED

The U. S. Department of Agriculture has issued a release calling attention to the fact that guano was first discovered in 1841 on islands off the coast of Peru. Until 1860, guano was the principal fertilizer used in the United States and the product soon became an important item of trade. In one 20-year period the value of guano shipped from one small group of islands was over 20 million dollars. Today, very little Peruvian guano is exported, most of it being used by Peruvian farmers.

### GERMAN FERTILIZER CARTEL

The Greater German Phosphate Union has been formed in Berlin to control the distribution of all phosphate fertilizers in Germany, according to the Department of Commerce. The new union was made up of the Basic Slag Cartel, Berlin; the Superphosphate Cartel, Berlin; and two companies, Kali-Chemie A. G., Berlin, and Chemische Fabrik Kalk, G.m.b.H, Cologne. A collateral cartel agreement has been concluded between the phosphate union and the Nitrogen Syndicate, Berlin, covering the mixed fertilizer of the latter, which contains superphosphate.

### WEBSTER TO HEAD AMERICAN POTASH CHICAGO OFFICE

Beginning November 15th, the Chicago office of the American Potash & Chemical Corporation will be in charge of W. W. Webster. He will succeed J. W. McGinnis who is confined to his home by illness. Mr. Webster was for a number of years connected with the Chilean Nitrate Sales Corporation.

## Fertilizer Problems Discussed with Government Officials

At the invitation of Leon Henderson, Administrator, Office of Price Administration, about 40 members of the fertilizer industry met October 23 with about 20 Government officials to discuss problems of the industry in relation to the national emergency and to arrange for the appointment of an industry committee to act with the Government on defense problems.

Supplies of fertilizer materials were discussed in the light of Government's demands as they appeared to be at this time. The consensus was that the nitrogen situation is not a problem of total supply but rather one of form and transportation. The Maritime Commission is cooperating in an effort to obtain ships for bringing in Chilean nitrate to an extent which should alleviate any crisis for at least 6 months.

There are adequate supplies of phosphate rock, and plant capacity available to produce more than twice the fertilizer requirements for normal phosphate. Although demands of steel and munition industries for sulphuric acid have increased, there is at present sufficient supply for acidulation of phosphate rock.

The potash industry appears able to exceed the demands of agriculture and industry, having at present a production capacity of about 50,000 tons over the amount used last year. Although Government demands for refined salts may take some from agriculture, this can be substituted for by run-of-mine salts, of which there is enough available to meet all demands.

In the case of phosphate rock, sulphur, and potash, transportation will be the bottleneck causing recurring uncertainties.

It is expected that an industry advisory committee will be selected in the near future by the units of Government responsible for handling fertilizer problems.

The agenda for the meeting follow: Opening Remarks and Introduction of Chairman, Dr. H. B. Rowe, Head, Food and Food Products Section, Office of Price Administration; Remarks of Chairman, David Meeker, Assistant Director, Office of Agricultural Defense Relations, U. S. Dept. of Agriculture; Department of Agriculture Production Goals, O. V. Wells, U. S. D. A.; The Plant Food Materials Situation, H. H. Meyers, O. P. M.; Supplementary Discussions on Materials Supply —Nitrogen, S. B. Haskell and J. A. Woods, Superphosphates, C. F. Hockley, Potash, J. W. Turrentine; The Sulphuric Acid Situation, K. D. Jacob, U. S. D. A.; Capt. H. D. Reynolds, War Dept.; Expert Controls on Fertilizer, P. H. Groggins, O. A. D. R.; Cutting Down Fillers—A Contribution to National Defense, A. L. Mehring, U. S. D. A.; Price Discussion, T. E. Milliman, O. P. A.; The General Problem from—The Government Angle, F. F. Elliott, U. S. D. A., The Industry Angle, Charles J. Brand; General Discussion; Discussion of Industry Committee and Possible Sub-Committees.

The following industry members had been invited by Mr. Henderson to attend the meeting, all but several of whom were present: Horace M. Albright, F. C. Baker, Charles J. Brand, B. H. Brewster, III, F. N. Bridgers, J. T. Burrows, L. H. Carter, A. H. Case, George Cushman, F. W. Darner, Leon H. Davis, M. K. Derrick, A. C. Diehl, Chester A. Fulton, W. J. Gray, J. Ross Hanahan, Sidney B. Haskell, J. B. Hinton. Chester F. Hockley, Evan H. Jones, N. H. Lockwood, S. J. Martenet, R. W. McClellan, Herbert H. Meyers, John A. Miller, Weller Noble, George Petitt, L. W. Rowell, C. D. Shallenberger, O. F. Smith, W. B. Tilghman, Jr., J. E. Totman, F. H. Tunnell, J. W. Turrentine, R. L. Upshur, Louis Ware, Frank S. Washburn, T. K. Wolfe, F. J. Woods, J. A. Woods, W. T. Wright.

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# FERTILIZER MATERIALS MARKET

## NEW YORK

**Market Quiet with Little Change. Scarcity of Chemical Materials Evident. Materials Moving Out on Contract.**

*Exclusive Correspondence to "The American Fertilizer."*

NEW YORK, November 6, 1941.

There has been very little change in any fertilizer market in the last week or so. Sulphate of ammonia continues scarce but some quantities continue to appear in second hands which are available at high prices.

### Potash

These materials continue scarce. There is apparently very little resale of muriate taking place, but small lots of sulphate of potash continue to move from second hands.

### Superphosphate

All grades of superphosphate continue firm with prospect of dwindling of offerings due to scarcity of sulphuric acid. Triple superphosphate for shipment over the balance of this year and the first third of next year is extremely scarce, with all indications that scarcity will continue throughout 1942.

### Nitrogenous

Nitrogenous is moving steadily against contract commitments. Quotations for eastern material are in the range of $2.75 to $3.00 ($3.34½ to $3.64½ per unit N).

### Fish Scrap

This market continues firm. Dried menhaden scrap is quoted at $4.75 ($5.77½ per unit N) and 10 cents, f.o.b. Chesapeake Bay factories. Fish meal is priced at $69.00 to $70.00 per ton.

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## INTERNATIONAL BUILDING NEW PHOSPHATE PLANT

The International Agricultural Corporation is building a new phosphate rock plant in Florida at a new area of the company's phosphate deposits, to offset exhaustion of rock in the sections now being mined. It is understood that the company is also planning a new phosphate plant in Tennessee.

## ATLANTA

**Important Meeting of N. F. A. to be Held in Atlanta. Market Quiet with Organics in Favorable Buying Position at Present.**

*Exclusive Correspondence to "The American Fertilizer."*

ATLANTA, November 3, 1941.

The National Fertilizer Association Convention meets in Atlanta on November 17th-19th, at which time it is expected that there will be a full attendance. Many problems affecting the industry will be discussed at that time and indications are that this will be one of the most important meetings that the Association has had since the present emergency developed.

It is generally conceded that commodity prices are certain to see advances from present levels, although the Government is trying to put a ceiling on most fertilizer ingredients that the farmers have to buy. Even so, with labor clamoring for more pay and advances being registered in practically every other line, it is not reasonable to suppose that the fertilizer industry will be singled out and discriminated against.

The current conferences held in Washington will bear watching and a full report will no doubt be forthcoming at the above mentioned Convention.

There has been a seasonal slacking in buying, due to the fact that quite a number of the manufacturers are already pretty well covered; those that are not, are awaiting developments before making final commitments. The present would seem to offer an excellent opportunity for those buyers who still have purchases to make, as certain organics are in a very favorable buying zone and will undoubtedly experience a much better demand later on, as the supply of inorganic nitrogen is limited and is becoming more so, due to the inroads of various defense industries.

Quotations are as follows:

*South American Blood.*—$4.25 ($5.16½ per unit N), c.i.f.

# A Complete Service

THE strategic factory locations of the American Agricultural Chemical Company, as shown on the accompanying map, assure prompt, dependable service for the complete line of products listed below.

We manufacture all grades of Commercial Fertilizers, Superphosphate, Agrinite Tankage, Bone Black, Bone Black Pigments (Cosmic Black), Dicalcium Phosphate, Monocalcium Phosphate, Gelatin, Glue, Ground Limestone, Crushed Stone, Agricultural Insecticides (including Pyrox, Arsenate of Lead, Calcium Arsenate, etc.), Trisodium and Disodium Phosphate, Phosphorus, Phosphoric Acid, Sulphuric Acid, Salt Cake; and we are importers and/or dealers in Nitrate of Soda, Cyanamid, Potash Salts, Sulphate of Ammonia, Raw Bone Meal, Steamed Bone Meal, Sheep and Goat Manure, Fish, Blood and Tin-Tetrachloride. We mine and sell all grades of Florida Pebble Phosphate Rock.

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Chambly Canton, Quebec, Can.
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
East Point, Ga.
East St. Louis, Ill.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Montgomery, Ala.
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Houlton, Me.
Laurel, Miss.
Montgomery, Ala.
Montreal, Quebec, Can.
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Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
St. Paul, Minnesota
Savannah, Ga.
Spartanburg, S. C.
Wilmington, N. C.

*Domestic Nitrogenous Tankage.* — $2.35 ($2.85½ per unit N), western producing points.

*Imported Tankage.*—$4.75 ($5.77½ per unit N) and 10 cents, c.i.f.

*Menhaden Machine Dried Scrap.*—$65.00 per ton in sellers' bags, Norfolk/Baltimore.

*Acidulated Fish.*—Nothing offered. Last quotation $3.75 ($4.56 per unit N) and 50 cents f.a.s. Southern ports.

*Sulphate of Ammonia.*—Steady demand, limited offerings.

*Nitrate of Soda.*—Chilean material now obtainable through December at the quoted price of $30.00 bulk basis, f.o.b. the ports.

*Cottonseed Meal.*—Prime 8 per cent, $37.00, Memphis; southeastern mills, $40.00

## BALTIMORE

**Light Movement of Materials and Quiet Market Reported. Shortage of Sulphate of Ammonia and Bags Expected by Spring.**

*Exclusive Correspondence to "The American Fertilizer."*

BALTIMORE, November 4, 1941.

Movement in fertilizer materials is very light, as is usual at this time of the year; consequently the market on materials is quiet without any outstanding features.

*Ammoniates.*—The market on ground animal tankage for fertilizer purposes continues to rule easy, and is nominally quoted at $5.25 per unit of nitrogen and 10 cents per unit of B.P.L., f.o.b. Baltimore, while ground dried blood is quoted around $4.50 per unit of nitrogen.

*Nitrogenous Material.*—There is no change in the market, which is nominally around $3.75 per unit of nitrogen, f.o.b. Baltimore.

*Sulphate of Ammonia.*—There are no offerings on the market, and while first hands continue to quote at $29.00 per ton, in bulk, there is none obtainable on this basis. In fact, no resale material is being offered, as all manufacturers are conserving their supplies as it looks as though there may be a shortage next spring.

*Nitrate of Soda.*—Cargo arrived here recently which is more than ample to take care of current requirements, which continue to be light at this time of the year. Importers continue to quote $30.00 per ton in bulk, and $33.00 per ton in 100-lb. bags, while 200-lb. bags is quoted at $32.40 per ton, f.o.b. Baltimore. They anticipate they will have ample to supply their customers' normal requirements during the coming season.

*Fish Scrap.*—A small sale was recently reported at the equivalent of $5.70 per unit of nitrogen and 10 cents per unit of B.P.L., f.o.b. fish factory, in bulk, which represents a slight increase over last price. Fish meal guaranteed 60 per cent protein is quoted slightly higher at $69.00 to $70.00 per ton, in 100-lb. bags, f.o.b. Baltimore.

*Superphosphate.*—It is reported that producers are accumulating smaller stocks, due to the scarcity and high price prevailing on sulphuric acid. The market, however, remains unchanged at $9.50 per ton of 2,000 lbs., basis 16 per cent for run-of-pile, and $10.00 for flat 16 per cent grade, both in bulk, f.o.b. Baltimore. These prices, however, are subject to change without notice.

*Bone Meal.*—There is nothing new in the market, and 3 and 50 per cent steamed bone meal continues to be quoted at $37.50 to $38.00 per ton, with 4½ and 47 per cent raw bone meal quoted at $37.50 to $38.50 per ton of 2,000 lb., f.o.b. Baltimore.

*Potash.*—There is no change in the situation and producers are not disposed to take on further business. Deliveries are now being made against contracts previously booked, and

*Manufacturers' Sales Agents for* **DOMESTIC**

**Sulphate of Ammonia**

Ammonia Liquor :: Anhydrous Ammonia

**HYDROCARBON PRODUCTS CO., INC.**

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stocks in the hands of manufacturers are more than ample for current requirements.

*Bags.*—The burlap market is practically unchanged since last report, and in some quarters it is anticipated that there is likely to be a shortage by next spring unless arrivals are considerably heavier than they have been for sometime past. The present market on plain, new, 10-oz. bags, basis 40 cut 54 in., is about $187.00 per thousand delivered Baltimore for the coming spring season.

## WILMINGTON

**Market Quiet with Short Supply and Most Producers Covered. Fish Production Below Normal.**

*Exclusive Correspondence to "The American Fertilizer."*

WILMINGTON, November 3, 1941.

There has been very little activity in the past two months in this market. Difficulty in supply has killed any trading in most of the materials, and the larger part of the trade have covered for all they feel that they should buy at this time.

Fishing has been extremely poor and all the producers have unfilled contracts of sufficient tonnage to prevent them making further offers now. If fall fishing picks up, there will be some tonnage offered within the next month; otherwise those who are not covered will have to do without fish.

## CHARLESTON

**Supply of Materials Limited with Good Demand. Little Change in Prices.**

*Exclusive Correspondence to "The American Fertilizer."*

CHARLESTON, November 4, 1931.

*Nitrogenous.*—Offerings on this continue limited. Quoted around $2.85 ($3.46½ per unit N), delivered southeastern ports.

*Blood.*—Bulk is quoted at $4.35 ($5.29 per unit N) f.o.b. Chicago, Ill. South American at $4.25 ($5.16½ per unit N), c.i.f. New York, Norfolk or New Orleans.

*Fish Scrap.*—Few offerings being made. Price unchanged.

*Cottonseed Meal.*—8 per cent, $35.50, Memphis; $41.00, Atlanta.

*Superphosphate.*—Stocks continue light on accqunt of shortage of sulphuric acid.

*Sulphate of Ammonia.*—Constant demand with no first hand sellers.

## CHICAGO

**Fair Demand for Nitrogenous Tankage. Many Buyers Covered for Spring Needs. Feed Market Lower.**

*Exclusive Correspondence to "The American Fertilizer."*

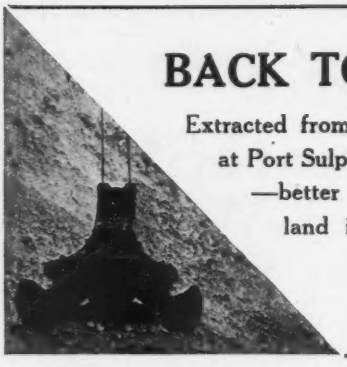
CHICAGO, November 3, 1941.

Trade in organics continues narrow excepting nitrogenous tankage for which there has been a fair demand. The large buyers of ammoniates remain without buying interest, saying they have sufficient for their probable spring requirements. No trading is reported in steamed bone meal, but prices remain firm with no selling pressure in sight.

Another reduction was recently announced in the list prices of digester tankage and meat scraps, resulting in lower prices for feed materials.

Nominal prices are as follows:

High grade ground fertilizer tankage, $3.50 to $3.75 ($4.25½ to $4.56 per unit N) and 10 cents; standard grades crushed feeding tankage, $4.50 to $4.75 ($5.47 to $5.77½ per unit N) and 10 cents; blood, $4.25 to $4.50 ($5.16½ to $5.47 per unit N); rendered tankage, $.95 to $1.00 per unit of protein, Chicago basis.

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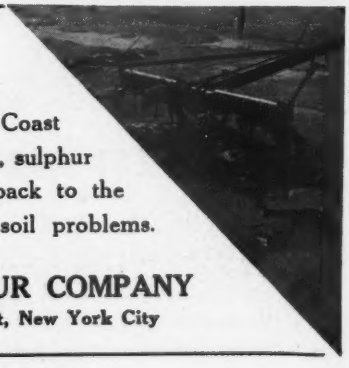

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60% $K_2O$

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Granular
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SULPHATE OF POTASH
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Sulphate of
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40% $K_2SO_4$ 18.50% MgO

OCTOBER 1, 1941, marked the first anniversary of the shipment of potash by Union Potash & Chemical Company, of Carlsbad, New Mexico. The swift, efficient development of this modern mining operation represents the climax of many years of effort to make America independent of foreign potash.

Potash, for use in the manufacture of fertilizers, became almost unobtainable at any price when the first World War cut off foreign imports. The yield and quality of crops suffered and America's food supply was threatened.

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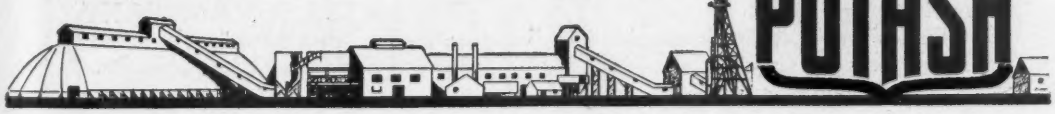

## PHILADELPHIA

**Market Quiet in Feed and Fertilizer Materials. Some Materials in Quite Short Supply.**

*Exclusive Correspondence to "The American Fertilizer."*

PHILADELPHIA, November 4, 1941.

During the past interval, the markets have become exceptionally quiet, there being practically no inquiry from either fertilizer or feeding interests.

*Sulphate of Ammonia and Nitrate of Soda.*—Nominally market is unchanged but both materials are practically unobtainable.

*Dried Blood.*—While the markets have eased off, there is no demand.

*Tankage.*—Quotations remain on previous high levels.

*Bone Meals.*—Some little trading done at previous price levels.

*Low Grade Ammoniates.*—Exceptionally scarce.

*Superphosphate.*—Producers are not inclined to quote for deliveries beyond the end of the year.

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## TENNESSEE PHOSPHATE

**Rainfall Relieves Drought but Water Power Still Restricted. Shipments of Rock for 1941 Will Exceed Previous Record Year.**

*Exclusive Correspondence to "The American Fertilizer."*

COLUMBIA, TENN., November 3, 1941.

Some pretty good fall rains have come to relieve the trying drought that has well nigh ruined pastures and many late crops. Not yet has enough fallen to start the creeks, much less the main rivers of this area, so that it has become necessary to cut down on various uses of power by regulation in the effort to insure sufficient for defense industries and those connected therewith.

Shipments into all lines of phosphate rock consumption are exceeding the usual rate of this period of the year. There is little question but that shipments for 1941 will quite considerably overrun those for 1940, already on record as the largest year since 1896 when brown rock was discovered in Tennessee.

The transfer of a large area, approximately 3,000 acres in Hickman County, has been recorded from the Meridian Fertilizer Co. to the International Agricultural Corporation. This property was purchased by the Meridian Co. more than forty years ago and was mined for many years by Meridian for blue rock. It is understood that the IAC did not consider the blue rock left by Meridian but are developing large deposits of the brown rock sands beneath the blue rock. It is supposed that the production will be largely handled by trucks to the present plants of IAC at Mt. Pleasant and Wales, though no announcement was made.

TVA reports great delay in construction of their phosphate plants at Godwin and Bear Creek on account of slow delivery of steel.

For the first time in 1941, shipments of ground rock for direct application in October fell below shipments in same month of 1940, but the total shipments of 1940 for that purpose have already been exceeded by the first ten months of 1941 by over 15 per cent, so that by the end of 1941 they should easily be 25 or 30 per cent in excess of 1940.

The annual meeting of the Middle Tennessee Technical Society on October 28th elected as officers for the ensuing year, L. A. Grissom, of the Charleston Mining Co., President; Robert Bourne, of the Victor Chemical Works, Vice-President; Dr. Butters, of the TVA, Secretary-Treasurer. There are now about 35 active local members and it is expected to add a number of both local and non-resident members this year.


## CLASSIFIED ADVERTISEMENTS

**Advertisements for sale of plants, machinery, etc., and for help and employment, in this column, same type as now used, 60 cents per line, each insertion.**

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FOR SALE—FERTILIZER PLANT. Stedman Dry Mixing Plant complete with Bag Printing Press. Capable of turning out as much as 10,000 tons of mixed goods per season. Address, VICTOR COTTON OIL COMPANY, GAFFNEY, S. C.

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# FERTILIZER MATERIALS

LET US QUOTE YOU ON YOUR REQUIREMENTS OF THESE MATERIALS

PHOSPHATE ROCK

SUPERPHOSPHATE

DOUBLE SUPERPHOSPHATE

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San Juan, P. R.
Sandusky, Ohio
Wilmington, N. C.

## COOLING AMMONIATED FERTILIZERS

(Continued from page 9)

to around 100° F. A decided improvement in physical condition of cooled fertilizer has been noted in several instances.

The equipment operation has lived up to anticipated performance in all cases. In Table I, note that, although these units were designed for 30 tons per hour, the material was cooled to 100° F. even at a rate of 37 tons per hour.

To date, the only maintenance has been occasional labor for cleaning out the material which cakes on the air ducts between the cooler and dust collector. These ducts should be made as short as good design will allow and clean-out doors provided at suitable intervals.

Measurements of the power required to turn the cooler at normal speed have indicated that it is approximately one-fifth the shell diameter squared where the diameter is measured in feet. For instance, about 7 H.P. are required to turn a 6 ft. diameter shell at 4 r.p.m.

Fig. 4 is a dryer which was converted into a cooler. The large duct on the end of the shell carries the outlet air. The material feed chute is hidden by the air duct.

Fig. 5 was taken from the discharge end when the cooler was in operation. Note the free flowing nature of the material coming from the overhead hopper into the dump cart.

### Mechanical Improvements

During the year a few minor but worthwhile changes have been made. Louvers for distributing the air more uniformly over the cooler shell cross section were found to give somewhat better heat transfer. Fig. 6 illustrates a satisfactory breeching for this purpose which is built around the exit end of the cooler shell and also serves as a chute to convey the discharged material to a belt conveyor or

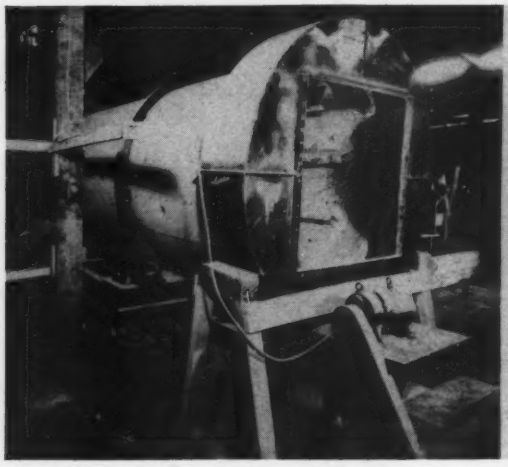

Fig. 6. Breeching built around exit end of cooler.

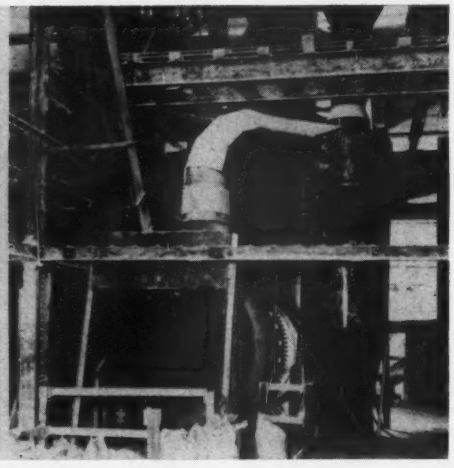

Fig. 7. Inlet breeching and dust collector.

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*See Page 4*

elevator. An improved inlet breeching and dust collector are shown in Fig. 7 taken at the material inlet end of another cooler.

It has been noted in very cold weather that if the air to material ratio is not maintained at 5 cu. ft. air per lb. material or above, then the relative humidity of the exit air becomes so high that moisture condenses on the walls of air ducts and cyclone dust collector. Increasing the air volume lowers the relative humidity and tends to prevent condensation.

The trade acceptance of the rotary cooler and the satisfactory operations during this first season have been encouraging. It is anticipated that, as cooling experience is accumulated, even greater flexibility in fertilizer mixing schedules can be achieved, and the prevention of phosphate reversion will result in a substantial aggregate saving.

**Literature Cited**

(1) Beeson and Ross, Ind. Eng. Chem., **29**, 1172 (1937).
(2) Beeson and Ross, *Ibid.*, **26**, 992 (1934).
(3) Harford and Keenen, *Ibid.*, **33**, 508 (1941).
(4) Keenen and Morgan, *Ibid.*, **29**, 197 (1937).
(5) Keenen, *Ibid.*, **24**, 44 (1932).
(6) MacIntire and Shaw, *Ibid.*, **24**, 1401 (1932).
(7) MacIntire, Hardin and Oldham, *Ibid.*, **28**, 711 (1936).

## OUR FOOD PRODUCTION PROGRAM

(Continued from page 11)

stay in business indefinitely and lose money any more than a manufacturer can. We wouldn't expect a plane manufacturer, for example, to make bombers and fighters at a loss. If he failed to break even, we'd know that he would have to quit. We want planes in this time of crisis, and so we see to it that the manufacturers are well paid for making them. We want food, lots of it, and to get it, we must assure fair prices for farmers.

What do I mean by fair prices? Generally speaking, I mean parity prices. When farmers began to complain about low prices after the first World War, Congress decided that during the 1909-1914 period farm prices were just about right by comparison with other prices. So that period is used as a yardstick to determine parity prices. If a farmer is getting parity prices for the things he raises, why that means that he's getting about the same prices, comparatively speaking, that he got back in the 1909-1914 period.

I think the country has come to accept the parity principle for agriculture and wants farmers to get parity. The agricultural legislation enacted by the Congress proves that. In turn, I feel that the majority of farmers think parity prices are high enough. Most farm prices are close to parity now and I haven't heard many complaints lately, about prices, from farmers.

Farm prices, however, have gone up in the past year and, as a result, some people think they are high. They aren't high but some of us simply had become accustomed to low prices for farm products.

As a matter of fact, the price of some farm products have been going down a little lately. I've already mentioned pork. Hogs are off something like a cent and a half a pound from their September high. But prices to consumers have climbed a good bit and I am afraid that farmers have been blamed for most of the increase.

Consumers should keep in mind that the price of farm products is only one factor in the cost of food. In many instances, other costs have gone up so that retail food prices have risen more than the farmer's price.

Food prices today are not unreasonably high by comparison with other periods. They are only a little over 80 per cent as high as in 1929. The average American family can eat as well as it did in 1929, and have more money left out of its pay check for other things after the food bill is paid.

Consumers should realize that farmers have been selling the things they raise at bargain prices for a long time. I don't think the average consumer will object very much to paying enough more for food to enable the farmer to get a reasonable return for his labor.

And don't forget this: The best protection consumers can have against scarcity and sky high prices is abundant production by farmers. And, as I have said, the way to get abundant production is to give farmers fair prices.

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Now, fair prices and exorbitant prices are two entirely different things. I don't believe the average farmer wants his prices to go much above parity. Farmers know that they are in the minority. Without the help of other groups, farmers can't get legislation to protect their interests. If they try to gouge the public now, farmers will have to pay dearly for it later on. Most farmers know that and want to conduct themselves accordingly.

Furthermore, farmers fear inflation. They remember the price spree during the first World War and the long deflation hangover that followed. Farm prices went down and stayed down but taxes, interests, and other costs remained high.

Of course, the best way to prevent inflation is to see that there are plenty of supplies and goods that consumers wish to buy. That is another reason that we in Agriculture are going to do all we can to produce enough for all concerned. However, there may be unusual weather conditions or other uncontrollable factors that will cause temporary shortages. Also, there is always the risk that speculators will drive prices up higher than is warranted by supply and demand conditions. Speculators usually do this sort of thing when the supplies have passed out of the farmers' hands. Therefore, most farmers are in favor of some sort of ceiling on prices such as was proposed in the original price control bill. I think the instances in which this ceiling will be applied are rare but it will be a good thing to have it just in case.

I think most farmers favor the principle of the original price control bill and I think most of them who are familiar with the subject think the provisions which fix the price ceiling for agricultural products at 110 per cent of parity take care of farmers pretty well. One hundred and ten per cent of parity will permit the moderate fluctuations necessary for prices to average parity. Parity for farm products is our goal and the bill was drafted with that principle in mind. It goes without saying that I am in accord with that principle.

Proposals have been made to raise the proposed ceiling on some farm products to well above 110 per cent of parity. These suggestions have been written into the price control bill. I am against these proposals. I am against them for two reasons. First, they would tend to make the bill ineffective. Prices for any product, whether from farm or factory, should not be allowed to go to unreasonable heights. If the bill is to prevent inflation, it must have authority to keep prices from going too high. Second, agriculture stands to lose a lot of good will if people get the idea that farmers are insisting on too much. It has taken us a long time to sell the country on the idea of equality for the farmer. Let's keep it sold.

I am also opposed to the proposal to increase the loan rate on cotton, corn, wheat, rice, and tobacco, the so-called basic commodities, to 100 per cent of parity. The loan rate on these commodities now is 85 per cent of parity, and I think that is high enough because the payments to farmers cooperating in the farm program are bringing their total return to parity. To raise the loan rate on corn, for example, would raise the price of feed pretty sharply and this would increase the cost of producing milk, eggs, meat, and other foods. In turn, the price of some foods would have to be raised considerably above parity. This would hurt consumers now and farmers later on.

There are still other reasons why the 100 per cent of parity proposal is, in my opinion, unwise. This high loan would make it more difficult for the dairy farmers, the meat producers, and the poultry producers to turn out the food we need in our defense effort.

From my observation, the chief worry of farmers just now is not farm prices today. They are bothered about farm prices tomorrow. They want to produce, but they know what surpluses did to their prices and income in the past. They are wondering what will happen after the defense effort is over.

In this world of ours, food is too precious to waste. I have said it is one of the strongest weapons of democracy; it may be the strongest. Let us therefore take the steps that are necessary to insure its abundant production and its wise use after it is produced. That is one of the best ways I know to defend and protect democracy.

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**For Alphabetical List of Advertisers, see page 33.**

**ACID BRICK**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
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**ACID EGGS**
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Sackett & Sons Co., The A. J., Baltimore, Md.

**ENGINEERS—Chemical and Industrial**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**ENGINES—Steam**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

**EXCAVATORS AND DREDGES—Drag Line and Cableway**
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.
Link Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.

**FERTILIZER MANUFACTURERS**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Farmers Fertilizer Co., Columbus, Ohio
International Agricultural Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**FISH SCRAP AND OIL**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Taylor, Henry L., Wilmington, N. C.
Wellmann, William E., Baltimore, Md.

**FOUNDERS AND MACHINISTS**
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Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
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Stedman's Foundry and Mach. Works, Aurora, Ind.

**GARBAGE TANKAGE**
Wellmann, William E., Baltimore, Md.

**GEARS—Machine Moulded and Cut**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**GEARS—Silent**
Link-Belt Company, Philadelphia, Chicago.
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**GELATINE AND GLUE**
American Agricultural Chemical Co., New York City.

**GUANO**
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Jeffrey Manufacturing Co., The, Columbus, Ohio.
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Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

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Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

**IRON SULPHATE**
Tennessee Corporation, Atlanta, Ga.

**INSECTICIDES**
American Agricultural Chemical Co., New York City.

**LACING—Belt**
Sackett & Sons Co., The A. J., Baltimore, Md.

**LIMESTONE**
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American Limestone Co., Knoxville, Tenn.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Wellmann, William E., Baltimore, Md.

**LOADERS—Car and Wagon, for Fertilizers**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Acid Making**
Atlanta Utility Works, East Point, Ga.
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Chemical Construction Corp., New York City.
Duriron Co., Inc., The, Dayton, Ohio.
Fairlie, Andrew M., Atlanta, Ga.
Monarch Mfg. Works, Inc., Philadelphia, Pa.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Coal and Ash Handling**
Hayward Company, The, New York City.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**MACHINERY—Elevating and Conveying**
Atlanta Utility Works, East Point, Ga.
Hayward Company, The, New York City.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**MACHINERY—Grinding and Pulverizing**
Atlanta Utility Works, East Point, Ga.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Power Transmission**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MACHINERY—Pumping**
Atlanta Utility Works, East Point, Ga.
Duriron Co., Inc., The, Dayton, Ohio.

**MACHINERY—Tankage and Fish Scrap**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MAGNETS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**MANGANESE SULPHATE**
McIver & Son, Alex. M., Charleston, S. C.
Tennessee Corporation, Atlanta, Ga.

**MIXERS**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**NITRATE OF SODA**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Company, The, New York City.
Bradley & Baker, New York City.
Chilean Nitrate Sales Corp., New York City.
Huber & Company, New York City.
International Agricultural Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

**NITRATE OVENS AND APPARATUS**
Chemical Construction Corp., New York City.

**NITROGEN SOLUTIONS**
Barrett Company, The, New York City

**NITROGENOUS ORGANIC MATERIAL**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
DuPont de Nemours & Co., Wilmington, Del.
Huber & Company, New York City.
International Agricultural Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Smith-Rowland Co., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**NOZZLES—Spray**
Monarch Mfg. Works, Philadelphia, Pa.

**PACKING—For Acid Towers**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Chemical Construction Corp., New York City.

**PANS AND POTS**
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PHOSPHATE MINING PLANTS**
Chemical Construction Corp., New York City.

**PHOSPHATE ROCK**
American Agricultural Chemical Co., New York City.
American Cyanamid Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Charleston Mining Co., Inc., Richmond, Va.
Huber & Company, New York City.
International Agricultural Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Phosphate Mining Co., The, New York City.
Ruhm, H. D., Mount Pleasant, Tenn.
Schmaltz, Jos. H., Chicago, Ill.
Southern Phosphate Corp., Baltimore, Md.
Taylor, Henry L., Wilmington, Del.
Wellmann, William E., Baltimore, Md.

**PIPE—Acid Resisting**
Duriron Co., Inc., The, Dayton, Ohio.

**PIPES—Chemical Stoneware**
Chemical Construction Corp., New York City.

**PIPES—Wooden**
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PLANT CONSTRUCTION—Fertilizer and Acid**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.

**POTASH SALTS—Dealers and Brokers**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Agricultural Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Taylor, Henry L., Wilmington, Del.
Wellmann, William E., Baltimore, Md.

**POTASH SALTS—Manufacturers**
American Potash and Chem. Corp., New York City.
Potash Co. of America, New York City.
Union Potash & Chemical Co., Chicago, Ill.
United States Potash Co., New York City.

**PULLEYS AND HANGERS**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**PUMPS—Acid-Resisting**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**PYRITES—Brokers**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., New York City.
Jett, Joseph C., Norfolk, Va.
Wellmann, William E., Baltimore, Md.

**QUARTZ**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

**RINGS—Sulphuric Acid Tower**
Chemical Construction Corp., New York City.

**ROUGH AMMONIATES**
Bradley & Baker, New York City.
Schmaltz, Jos. H., Chicago, Ill.
Wellmann, William E., Baltimore, Md.

A Classified Index to Advertisers in "The American Fertilizer"

# BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

**SCALES—Including Automatic Bagging**
Atlanta Utility Works, East Point, Ga.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SCRAPERS—Drag**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Hayward Company, The, New York City.
Link-Belt Company, Philadelphia, Chicago.

**SCREENS**
Atlanta Utility Works, East Point, Ga.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SEPARATORS—Air**
Sackett & Sons Co., The A. J., Baltimore, Md.

**SEPARATORS—Including Vibrating**
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**SEPARATORS—Magnetic**
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SHAFTING**
Atlanta Utility Works, East Point, Ga.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.
Stedman's Foundry and Mach. Works, Aurora, Ind.

**SHOVELS—Power**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Link-Belt Speeder Corp., Chicago, Ill., and Cedar Rapids, Iowa.
Sackett & Sons Co., The A. J., Baltimore, Md.

**SPRAYS—Acid Chambers**
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**SPROCKET WHEELS (See Chains and Sprockets)**

**STACKS**
Sackett & Sons Co., The A. J., Baltimore, Md.

**SULPHATE OF AMMONIA**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Barrett Company, The, New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Hydrocarbon Products Co., New York City.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Taylor, Henry L., Wilmington, N. C.
Wellmann, William E., Baltimore, Md.

**SULPHUR**
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Freeport Sulphur Co., New York City.
Texas Gulf Sulphur Co., New York City.

**SULPHURIC ACID**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
Jett, Joseph C., Norfolk, Va.
Taylor, Henry L., Wilmington, N. C.

**SULPHURIC ACID—Continued**
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
Huber & Company, New York City.
International Agricultural Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
Schmaltz, Jos. H., Chicago, Ill.
Taylor, Henry L., Wilmington, N. C.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Wellmann, William E., Baltimore, Md.

**SUPERPHOSPHATE—Concentrated**
Armour Fertilizer Works, Atlanta, Ga.
International Agricultural Corporation, Chicago, Ill.
Phosphate Mining Co., The, New York City.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.

**SYPHONS—For Acid**
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**TANKAGE**
American Agricultural Chemical Co., New York City.
Armour Fertilizer Works, Atlanta, Ga.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Baker & Bro., H. J., New York City.
Bradley & Baker, New York City.
International Agricultural Corporation, Chicago, Ill.
Jett, Joseph C., Norfolk, Va.
McIver & Son, Alex. M., Charleston, S. C.
Schmaltz, Jos. H., Chicago, Ill.
Smith-Rowland, Norfolk, Va.
Taylor, Henry L., Wilmington, N. C.
Wellmann, William E., Baltimore, Md.

**TANKAGE—Garbage**
Huber & Company, New York City.

**TANKS**
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Sackett & Sons, Co., The A. J., Baltimore, Md.

**TILE—Acid-Proof**
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.

**TOWERS—Acid and Absorption**
Chemical Construction Corp., New York City.
Fairlie, Andrew M., Atlanta, Ga.

**UNLOADERS—Car and Boat**
Hayward Company, The, New York City.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Link-Belt Company, Philadelphia, Chicago.
Sackett & Sons Co., The A. J., Baltimore, Md.

**UREA**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**UREA-AMMONIA LIQUOR**
DuPont de Nemours & Co., E. I., Wilmington, Del.

**VALVES—Acid-Resisting**
Atlanta Utility Works, East Point, Ga.
Charlotte Chem. Laboratories, Inc., Charlotte, N. C.
Duriron Co., Inc., The, Dayton, Ohio.
Jeffrey Manufacturing Co., The, Columbus, Ohio.
Monarch Mfg. Works, Inc., Philadelphia, Pa.

**WHEELBARROW (See Carts)**

**ZINC SULPHATE**
Tennessee Corporation, Atlanta, Ga.

# ALPHABETICAL LIST OF ADVERTISERS

For Classified Index, see pages 28 to 32, inclusive

American Agricultural Chemical Co., New York City .....16
American Cyanamid Co., New York City..34
American Limestone Co., Knoxville, Tenn..22
American Potash and Chemical Corp., New York City .....4, 23
Armour Fertilizer Works, Atlanta, Ga.....21
Ashcraft-Wilkinson Co., Atlanta, Ga., Front cover
Atlanta Utility Works, East Point, Ga. ....—

Bagpak, Inc., New York City .....—
Baker & Bro., H. J., New York City, Back cover
Barrett Company, The, New York City ....—
Bemis Bro. Bag Co., St. Louis. Mo. .....—
Bradley & Baker, New York City.....14

Charleston Mining Co., Inc., Richmond, Va. 4
Charlotte Chemical Lab., Charlotte, N. C. ..23
Chemical Construction Corp., New York City .....25
Chilean Nitrate Sales Corp., New York City.—

Dickerson Co., The, Philadelphia, Pa.....20
Dougherty, Jr., E., Philadelphia, Pa. .....33
Du Pont de Nemours & Co., E. I., Wilmington, Del. .....—
Duriron Co., The, Dayton, Ohio .....—

Fairlie, Andrew M., Atlanta, Ga. .....29
Farmers Fertilizer Co., Columbus, Ohio ....34
Freeport Sulphur Co., New York City.....18

Gascoyne & Co., Inc., Baltimore, Md. .....34

Hayward Company, The, New York City ..34
Huber Co., L. W., New York City.....26
Hydrocarbon Products Co., New York City.17

International Agricultural Corporation, Chicago, Ill. .....2d cover

Jeffrey Mfg. Co., The, Columbus, Ohio....—
Jett, Joseph C., Norfolk, Va. .....34

Keim, Samuel D., Philadelphia, Pa.....33

Link-Belt Company, Chicago, Ill. .....—

McIver & Son, Alex. M., Charleston, S. C..27
Monarch Mfg. Works, Inc., Philadelphia, Pa. .....34

Pacific Coast Borax Co., New York City, 2d cover
Phosphate Mining Co., The, New York City —
Polk Co., R. L., Detroit, Mich.....27
Potash Co. of America, New York City, 3d cover

Ruhm, H. D., Columbia, Tenn. .....34

Sackett & Sons Co., The, A. J., Baltimore, Md. .....—
Schmaltz, Jos. H., Chicago, Ill. .....25
Shuey & Company, Inc., Savannah, Ga. ....34
Smith-Rowland Co., Norfolk, Va. .....—
Southern Phosphate Corp., Baltimore, Md. 25
Stedman's Foundry and Machine Works, Aurora, Ind. .....24
Stillwell & Gladding, New York City .....—
Synthetic Nitrogen Products Co., New York City .....—

Taylor, Henry L., Wilmington, N. C. .....28
Tennessee Corporation, Atlanta, Ga. .....—
Texas Gulf Sulphur Co., New York City..—

Union Potash & Chemical Co., Chicago, Ill. 19
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla. .....23
United States Potash Co., New York City.. 3

Wellmann, William E., Baltimore, Md. ....25
Wiley & Company, Inc., Baltimore, Md. ....34

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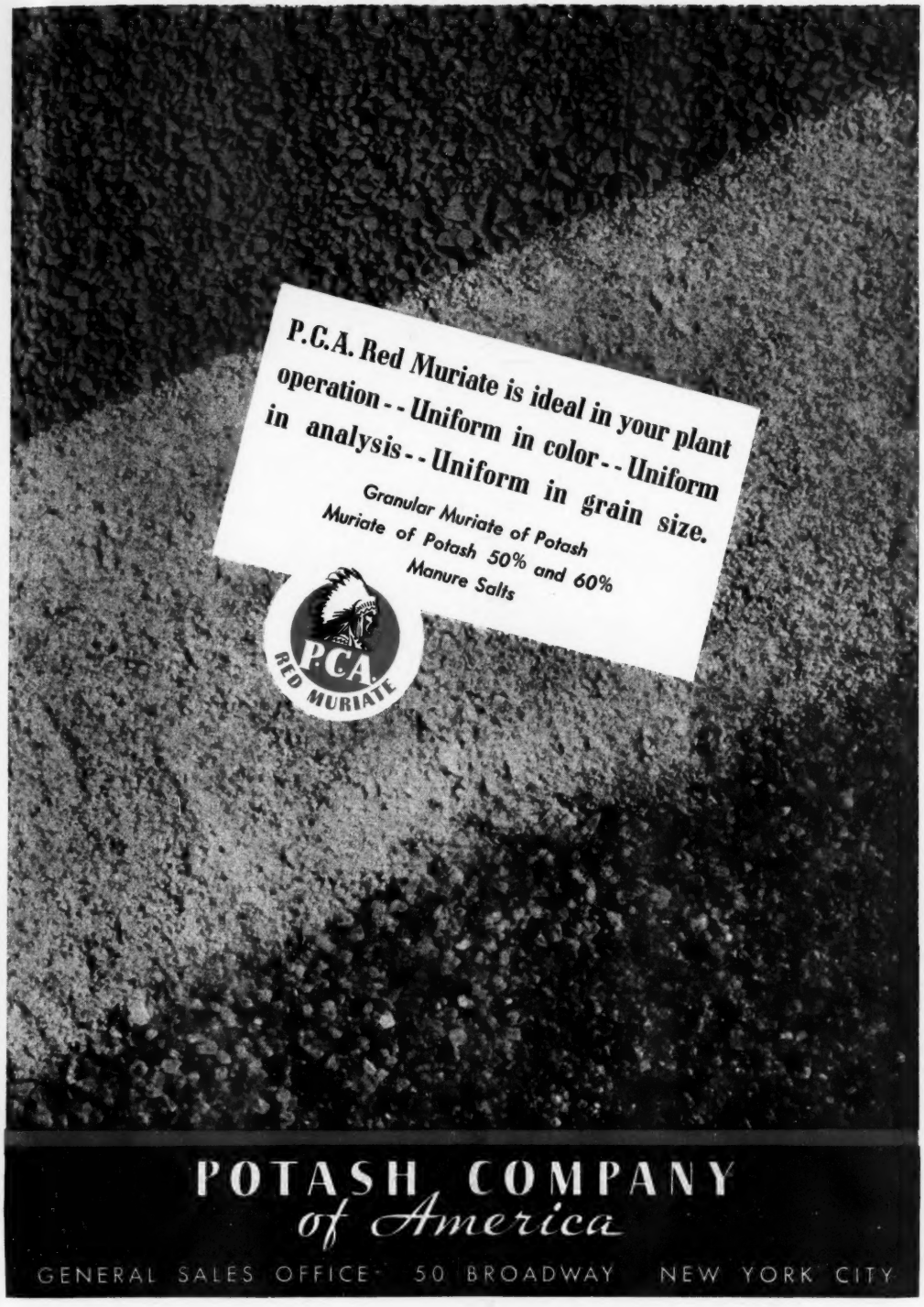
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